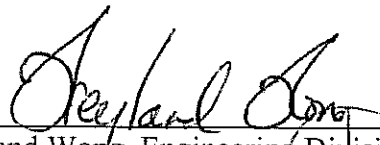


LBL SAFETY REVIEW COMMITTEE

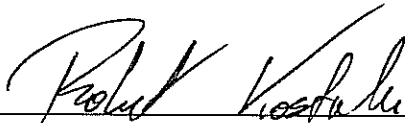
**Triennial Review of the
Management of Environment, Safety, and Health**

Earth Sciences Division

August 2008



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SRC Member

**Triennial Review of the Earth Sciences Division
Management of Environment, Safety, and Health (MESH)**

August 2008

A. Executive Summary

The Earth Sciences Division has a well established and organized approach to managing environmental health and safety. Their internal ES&H systems, processes, and procedures are well communicated and implemented. The Division Director and Deputy Director are keenly aware of the challenges of managing safety in their division. A variety of approaches are implemented to keep the attention to safety fresh and focused.

The previous Earth Sciences Division MESH Review looked at a division that was lead by the previous division director, Bo Bodvarsson. His leadership and style set a tone that ensured safety was not ignored. The MESH team was interested in detecting changes in safety leadership and practices since the last Earth Sciences Division MESH in 2004. The new division director, Don DePaolo's own safety leadership style emphasizes ES&H in the Earth Sciences Division to demonstrate he expects and requires all work activities in his division to be managed and performed safely.

The leadership commitment to managing safety is well demonstrated through walkthroughs of work areas by the Division Senior Management that includes Division Director, DOE-Berkeley Site Office representative, and department heads. This practice is found to be an effective way of exhibiting safety leadership and commitment as well as to facilitate interaction and two-way communication with all staff at a personal level.

To ensure that a sustained and positive ES&H success is achieved, the Earth Sciences Division increased effort resources for their Division Safety Coordinator position from 35% to 75% this last year. The specially designed ESD ES&H website and Level One email messages are used as primary communication modes for informing effectively the division staff of new ES&H initiatives, requirements, and changes in the existing safety policies and other ES&H related topics.

The Earth Sciences Division has demonstrated an exemplary ES&H performance in their research facilities, shops and offices. It has an overall excellent ES&H program that is well integrated into the ongoing professional activities and controlled by the existing line management system. The effective implementation of the safety program within the Division results in relatively few accidents, injuries, occurrences, or violations. The MESH team identified several noteworthy practices but also some areas for improvement.

B. Description of the Appraisal Process

The objective of the MESH Review is to evaluate the Earth Sciences Division's management of ES&H in its research and operations. The focus of this review was on the implementation and effectiveness of the Division's Integrated Safety Management (ISM) Plan. The MESH is a peer review that provides independent perspective from the LBNL research and operations community on the status quo of ES&H management and culture in the Division. The review team consisted of Safety Review Committee (SRC) Member, team leader Weyland Wong from the Engineering Division; and SRC Member Robert Kostecki, Environmental Energy Technologies Division. Jerry Ohearn of the Facilities Division was initially part of the review team, but left the SRC early in the review process and therefore did not participate.

The appraisal process included a review of the documentation provided by Earth Sciences Division and the Office of Contract Assurance i.e., the FY07 Division ES&H Self-Assessment Report and validation report, Division ISM Plan, Occurrence Reporting and Processing System (ORPS) and Non-compliance Tracking System (NTS) reports, Corrective Action Tracking System (CATS) records, ESD ES&H Quarterly Reports, Division Council Meetings summary, and accident and injury information.

The MESH Team conducted field visits and interviews with several technical and administrative line management personnel and employees in building 70A, 64 & 90. The objective of the walk-throughs was to observe the work being performed, the hazards present in the work areas, and the controls applied to mitigate these hazards. Specific comments resulting from the site visit are included in this MESH report. The MESH team interviewed representatives of the Division line management, including the Division Deputy Director and the Division Director, to assess their knowledge and understanding of their roles and responsibilities as well as the means of implementation and control of the Division's ES&H program.

C. Results of the MESH Appraisal

The appraisal results are organized by the five core functions of Integrated Safety Management. Findings are broken into three categories: concerns, observations, and noteworthy practices. Concerns are clear cases of practices or conditions that do not comply with regulations or LBNL policy, and/or indicate deficiencies of the ES&H management systems within the Division. Concerns are deficiencies and must be corrected. Observations may indicate potential deficiencies and suggest need for improvement. They may be practices or conditions that are not necessarily out of compliance, but could lead to non-compliance, if unaddressed. Noteworthy practices are practices and conditions that are recognized for their excellence and should be considered for lab-wide consideration and application. All findings are based on documentation review, interviews with division staff, and workspace inspections.

1. Work Planning

1.1 2008 MESH Results

The program of integrating and communicating safety concerns during work planning is well established within the Earth Sciences Division. For a division that does a fair amount of field work, this can be challenging, but the employees have continuously reevaluated their processes and practices to insure the safety envelope fully captures changes in the scope of work as well as changes in safety policies. The effective communications mechanism the division utilizes to provide resources to their staff demonstrates their commitment to safety. Work planning is well emphasized in the division ISM plan with roles and responsibilities and scope of work authorized clearly established.

Noteworthy Practice: Sharing and feedback of safety information is evident in the Earth Sciences Division communications structure; division Council meetings, safety committee, weekly meetings, quarterly town hall meetings, safety emails, laboratory safety primers and routine one-on-one interactions.

Noteworthy Practice: Very effective and well maintained divisional “Safety” website containing a variety of well developed ES&H guides. It includes links to the existing EH&S policies, records of the past performance as well as the most recent issues and initiatives. ESD employees recognized during the interviews that they often referred to this website for basic ES&H and EH&S information and policy updates.

Noteworthy Practice: Employees clearly identify and recognize the line management authority for safety. The chain of command seems to be well established. Direct communication between the Safety Coordinator and the Division line management as well as the employees seems unobstructed. All line managers interviewed were clear about their responsibilities and the need to communicate safety to their staff.

Concern: Two recently hired employees who were working in the office area in bldg 90, although up to date with the JHA and training, showed relatively poor understanding of the ISM concept and personal responsibility for safety. Supervisors and new employees must spend more time during the initial work days after hire to convey and explain the principles of Safety culture at LBNL and within the division to assure that all new employees are brought up to speed as soon as possible.

2. Hazard Identification and Risk Analysis

2.1 2008 MESH Results

The ES&H hazard identification and risk analysis processes in the Earth Sciences Division are well established for new and continuing work. Project/Facility Safety Review Questionnaires are completed and regularly reviewed (at least annually). For field work, Off-Site Safety and Environmental Protection Plans (OSSEPP) are detailed, rigorously reviewed to ensure hazards and risks are identified. Workspaces are routinely inspected for good practices as well as

problems. New for this year is the Laboratory's transition from the JHQ to the JHA. Each employee is performing a much more thorough analysis of their work and associated hazards and having a discussion with their supervisor about them.

Noteworthy Practice: Laboratory Safety documentation was up-to-date and readily produced at the facilities visited by the MESH review team. The Division was still in the transition period between the old JHQ and the new JHA system and in the process of reassessing the specific hazards and controls for each laboratory. The Division personnel were making very good progress on documenting the identification of hazards and appropriate controls to adapt in the new system requirements ahead of the deadline.

3. Establishment of Controls

3.1 2008 MESH Results

Controlling hazards is very well understood and practiced in the Earth Sciences Division. The establishment, maintenance of formal authorizations demonstrates a keen awareness and practice of managing and controlling significant hazards within the division's scope of work. Laboratory Primers were available for viewing wherever the MESH went. The long standing practice of having a laboratory specific collection of key safety information including safety requirements and procedures, the ESD ISM Plan, emergency contacts, any other associated documents brought together in a single repository makes it a handy reference and makes it very convenient and easy to efficient orient a newcomer to the location.

Noteworthy Practice: The building 64 ESD shop was of particular interest since the area safety lead had just retired and returned only to work part time. The division had already set up a restricted access rule (qualified and authorized) for the shop as well as several ESD staff who were qualified to grant access and provide oversight when the area safety lead was not present.

4. Work Performance

4.1 2008 MESH Results

The MESH team viewing of a variety of Earth Science work environments and interviewing of staff provided a comfortable sense that work is being performed safely. Staff comfortably articulate their roles and responsibilities and appropriate responses to what they would do in an off-normal situation. Reports and records of safety performance is the lagging indicator that identifies the Earth Sciences Division, along with every Laboratory Division, is also not immune to ergonomic safety concerns.

Observation: Recordable injuries since the last MESH included two fluke incidents unrelated to Earth Sciences work activities. A trip-fall injury at the Lab cafeteria and unknown flying debris striking a ESD staff person as they were walking between buildings.

Concern: Occasional housekeeping issues were noticed in the lab areas e.g. boxes with lab supplies stored on the floor in the hallways. These are relatively small concerns from the safety

point of view but supervisors and their employees should be constantly encouraged to follow good housekeeping rules before they escalate into real safety problems.

4.2 Corrective Action Status – 2004 MESH

2004 MESH Concern: There was one ESD principal investigator who did not appear to be conversant with safety regulations and responsibilities, in particularly requirements for the use of radioactive materials. The researcher stated that the lab's Radiation Work Authorization (RWA) was inactive, yet there was evidence that the dry waste containers were in use. The researcher could not articulate clearly the use of radioactive material in the lab.

2008 Status: This researcher is fully capable and able to demonstrate their safety roles and responsibilities on a daily basis. However, in the review/inspection/interview situation, the PI is not comfortable articulating what they need to know and that they know it. Follow-up (verification of knowledge and practice) with their supervisor assured no safety gap existed. It was also noted that radiation work has been curtailed in this lab.

2004 MESH Concern: Although the OSSEPP form states that first aid, CPR, and fire extinguisher training are mandatory for all off-site participants, a review of personnel training records shows a very low completion rate for these three training courses. ESD has indicated that these courses are not necessary for off-site work and that the OSSEPP form will be revised to delete these requirements. Because off-site work may involved isolated locations with minimal health, safety and emergency services, the Division should seek further input from EH&S subject matter experts for not only the necessity of these three courses but also other training that can be tailored to site-specific hazards, such as bloodborne pathogens. Moreover, the Division should consider attaching each staff's training record to the OSSEPPs so that off-site supervisors can confirm that all training requirements are met prior to the start of off-site work.

2008 Status: The requirement for first aid, CPR and fire extinguisher training is truly dependant on the availability of these services at the offsite location. Since the last MESH, the absolute requirement for these training coursed for all Off-Site Safety and Environmental Protection Plans (OSSEPP) has been removed. Upon submission for review and approval, the principal investigator identifies and decides the need for this training based on the work location and appropriate available support resources. The division safety coordinator reviews the proposal to insure resources and/or training match the hazards and risks before forwarding for management approval. The safety coordinator also validates with the PI that required training is completed prior to field work commencing.

5. Feedback and Improvement

5.1 2008 MESH Results

Lines of communications and established opportunities for safety dialogue, discussions and interactions are well organized and practiced. The MESH team found staff knew and exercised

the prerogative to provide feedback and managers and PIs sought comments and opinions to improve safety.

Observation: Work area walkthroughs are the most effective methods of maintaining safety especially in the technical areas. It was unclear to the review team how the results of walkthroughs carried out by the PIs and Facility managers were assessed, evaluated and processed. For example, how does the frequency of walkthroughs vary between different technical areas? Is the scope of the walkthrough task/facility dependent?

Observation: No clear definition was obtained from the Division management of how much the safety performance affects individual PRD/P2R reviews and the outcome of thereof. Do the employees know that safety performance affect their overall performance rating and to what extent?